File

SITE SS-005 NON-DESTRUCTIVE INSPECTION FACILITY
SOIL OPERABLE UNIT

PROPOSED PLAN

PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

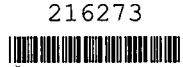
DRAFT FINAL

NOVEMBER 1997

UNITED STATES DEPARTMENT OF THE AIR FORCE
INSTALLATION RESTORATION PROGRAM

Prepared By:

URS GREINER, INC.



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1.0 INTRODUCTION

This Proposed Plan recommends a remedial action for the soil operable unit for the Non-Destructive Inspection (NDI) Facility, SS-005, at the Plattsburgh Air Force Base (AFB) in Plattsburgh, New York (Figure 1). The United States Air Force (USAF) is proposing this plan to address contaminated soils present as a result of site activities. Based on the findings of the various Installation Restoration Program (IRP) investigations at the NDI, Site SS-005, the USAF recommends institutional controls as the remedial alternative for the SS-005 Soil Operable Unit.

Because the FT-002 Groundwater Operable Unit encompasses site SS-005 and several other IRP sites in the industrial area, the site has been divided into a soil operable unit and a groundwater operable unit. This proposed plan specifically addresses the soil operable unit for site SS-005. The groundwater operable unit for SS-005 will be addressed as part of the FT-002 Groundwater Operable Unit preferred remedial alternative.

The action plan has been evaluated in detail as part of the Department of Defense's (DOD) IRP and Base Realignment and Closure (BRAC) regulations and guidance.

The Proposed Plan is being published in accordance with Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Section 300.430 (f) of the National Contingency Plan (NCP). Its purpose is to summarize the results and conclusions of previous studies, and to provide information for public review and comment on the remedial alternative being considered. In accordance with the Federal Facilities Agreement between the USAF, the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC), the USAF will consider public input while selecting the final action plan for SS-005. Therefore, the public is encouraged to review and comment on the alternative being considered. The **Administrative Record File** contains the information upon which the selection of the response action will be based. This information is available to the public at the **Information Repository**, which is located at the Feinberg Library at the State University of New York (SUNY) Plattsburgh Campus. The repository documents are on reserve (see the Special Collections Librarian). Photocopying equipment is available.

Administrative Record File Location:	
Feinberg Library	
SUNY at Plattsburgh	
Plattsburgh, NY 12901	
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Monday through Thursday	8:30 AM to 11:30 PM
Friday	8:00 AM to 9:00 PM
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Sunday	9:00 AM to 11:30 PM

This plan addresses contamination that may have resulted from surface spills and potential tank leaks at the NDI facility. A remedial investigation (RI), conducted from 1992 to 1995, identified possible migration pathways of chemical contaminants to potential receptors. In addition, the risks posed to human health and the environment were evaluated in the RI.

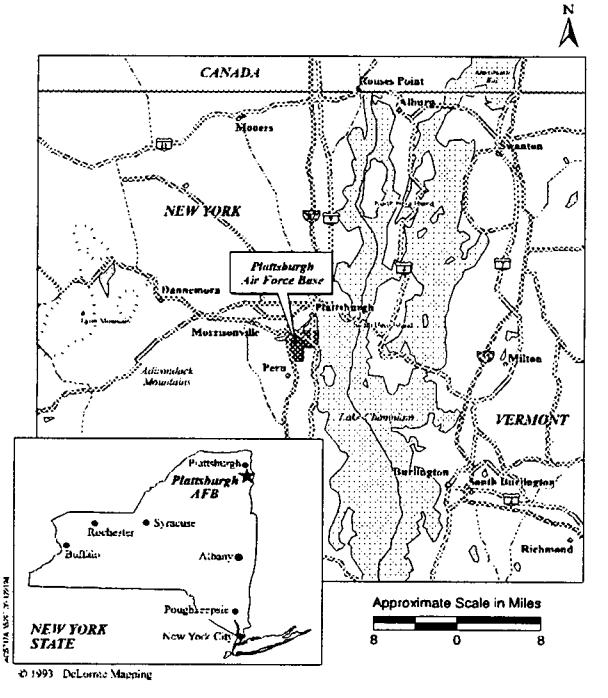


FIGURE 1: PLATTSBURGH AFB VICINITY LOCATION MAP

Based on the results of the RI, it has been determined that there are no significant threats to human or ecological health from contaminants in the soil at SS-005. The assessment of risk to human health assumed that, in the future, the site would be used for aviation support/industrial purposes, which is the planned land use for this area. Residential use was not considered in the assessment. Therefore, the USAF's recommended alternative includes institutional action to limit the use of the site to non-residential land use.

Although the assessment of risk to human health determined that the low level contamination detected in groundwater does not pose a potential risk to human health if used as a potable resource, several chemicals detected in groundwater exceeded regulatory standards. Additionally, there is a possibility that the groundwater plume from the FT-002 site may eventually migrate underneath site SS-005. Therefore, the USAF's recommended alternative includes institutional action to prohibit the installation of any wells for drinking water or any other purposes that may result in the use of the underlying groundwater.

The result of the soil and groundwater sampling indicate that the soils at SS-005 are not a source of groundwater contamination. Therefore, groundwater monitoring is not included in the USAF's recommended alternative. Rather, groundwater remedial actions, including monitoring, will be specified as necessary in the preferred alternative for the Groundwater Operable Unit for the upgradient FT-002 site.

2.0 SITE BACKGROUND

Plattsburgh AFB, located in Clinton County in northeastern New York State, is bordered on the north by the City of Plattsburgh, on the west by Interstate 87, on the south by the Salmon river, and on the east by Lake Champlain. It lies approximately 26 miles south of the Canadian border and 167 miles north of Albany. Plattsburgh AFB was closed on September 30, 1995 as part of the (third round of) base closures mandated under the Defense Base Closure and Realignment Act of 1993, and its reuse is being administered by the Plattsburgh Airbase Redevelopment Corporation (PARC). According to land use plans presented in the Environmental Impact Statement (Tetra Tech 1995) for disposal and reuse of the base, the likely reuse at SS-005 and its surrounding area will be aviation support (industrial).

As part of the USAF's IRP and the BRAC program, Plattsburgh AFB has initiated activities to identify, evaluate, and restore identified hazardous waste sites. The IRP at Plattsburgh AFB is being implemented according to a Federal Facilities Agreement Docket No. II-CERCLA-FFA-10201, signed between the USAF, USEPA and NYSDEC on September 12, 1991. Plattsburgh AFB was placed on the National Priorities List (NPL) on November 21, 1989.

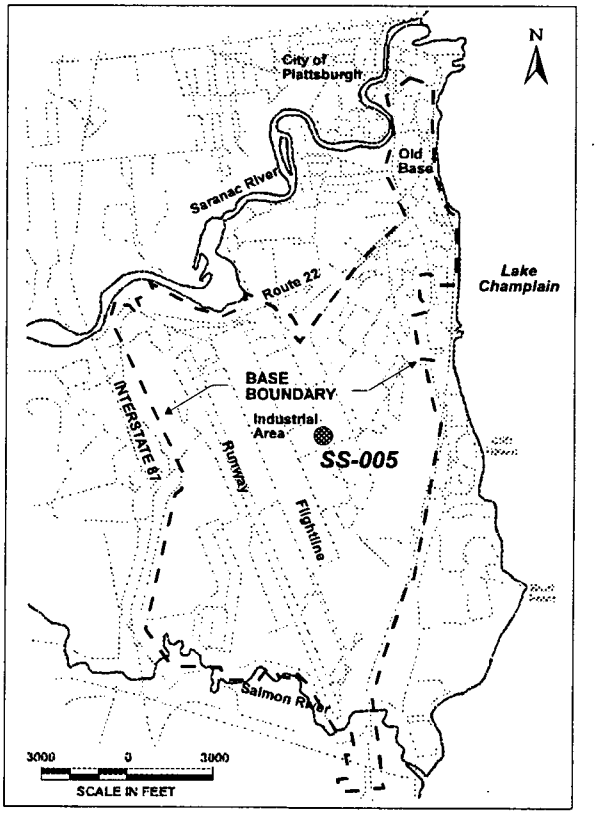


FIGURE 2: LOCATION OF SS-005

2.1 Site Description and History

The NDI Facility is located in the east-central portion of the base, within the industrial area (Figure 2). The site is situated approximately 160 feet northeast of Nose Dock 4 and 160 feet north-northwest of an aboveground reservoir. The U-shaped NDI building is surrounded by asphalt pavement. The facility was used for the non-destructive x-ray inspection of aircraft parts. A waste accumulation area formerly was located at SS-005.

The accumulation point handled approximately 120 gallons of waste and 200 gallons of photographic developer solution per year. Materials used and stored at this facility included PD-680 cleaning solvent, engine oil, 1,1,1-trichloroethane, developer, dye penetrant fluid, remover, and photographic fixer solution. The fixer solution was treated by a silver recovery unit before disposal.

A drainage ditch runs southeasterly away from the former waste accumulation area. Precipitation that falls on the site is collected in the storm drainage system along Arizona Avenue. Storm drainage in this area is discharged to the Golf Course stream system and eventually flows into Lake Champlain. Because of the relatively low concentration of contaminants in surface soils at site SS-005, contamination is not expected to migrate away from the site via this surface drainage pathway. A former oil/water separator and a holding tank near Nose Dock 4 were located southwest of the NDI building. Possible sources of contamination include surface spills, runoff from the waste accumulation area, and potential leaks from the oil/water separator and holding tanks. Site features are shown in Figure 3.

The site geology consists of a marine/lacustrine sand, ranging from 25 to 39 feet thick, overlying a relatively impermeable silt and clay unit. The groundwater table is shallow in the vicinity of SS-005, and lies approximately 4 feet below ground surface. Groundwater flows from the west toward the east and out the golf course drainage into Lake Champlain.

2.2 Scope and Role of Response Action

Chemical contaminants are present at relatively low levels in both soil and groundwater at SS-005. Based on the human and ecological health risk assessment (HRA) results, these chemicals do not pose a significant threat to human health or the environment.

Principle threats include a potential for groundwater concentrations to increase beneath the site as a result of an upgradient source and an unevaluated potential risk that may be present for land use conditions other than the expected industrial use. These principle threats are addressed by the preferred alternative presented in this plan.

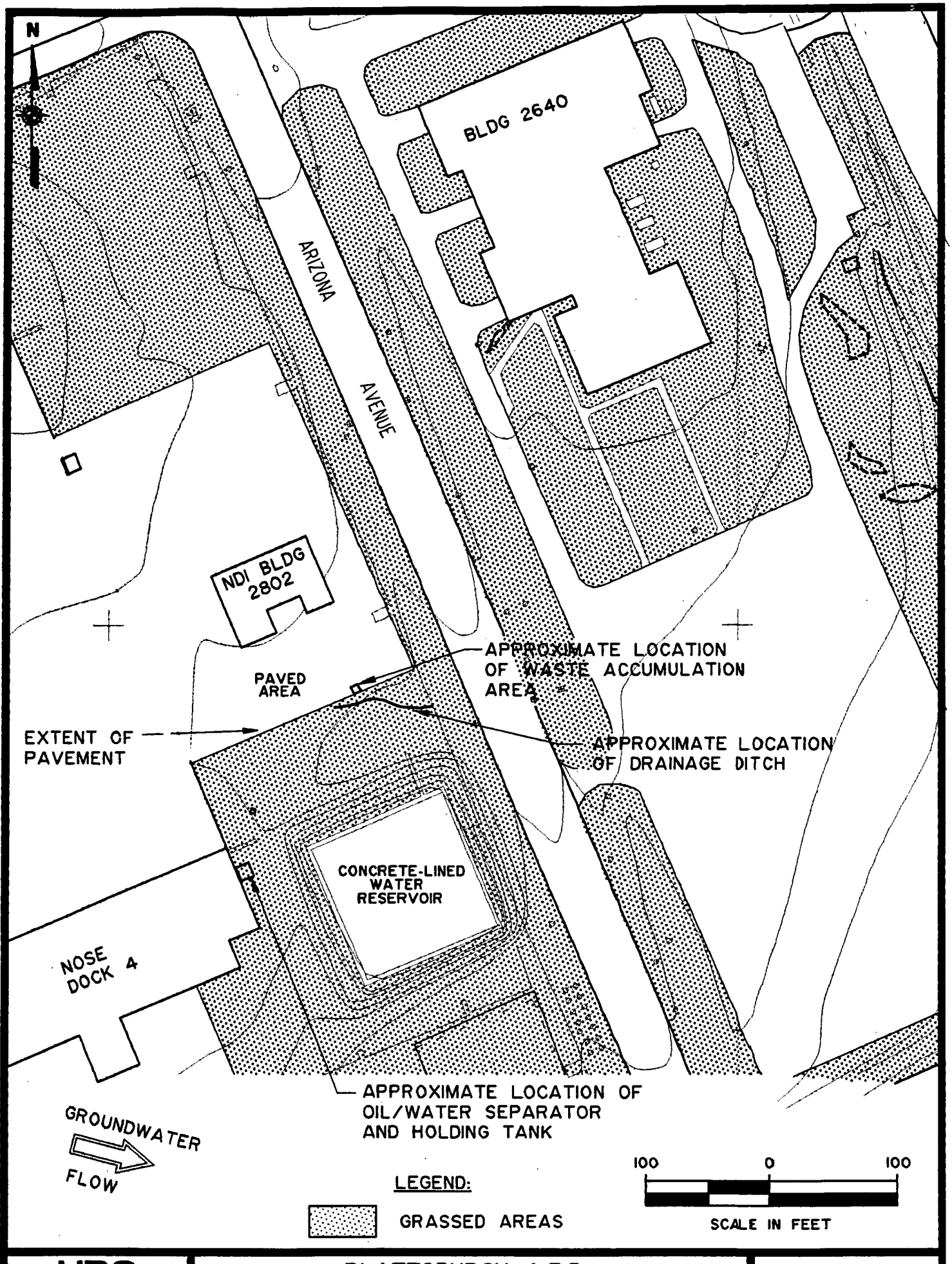
2.3 Summary of Previous Investigations

2.3.1 Site Inspection

A site inspection (SI) of the NDI Facility conducted in 1987 consisted of a records search, a soil organic vapor (SOV) survey, and soil sampling (E.C. Jordan Co. 1989). The records search revealed that no data was available regarding the site operations or type of waste stored at the site. The SOV samples, taken adjacent to Arizona Avenue, contained organic vapors that were approximately one order of magnitude higher than those taken next to Nose Dock 4. Surface soil samples contained traces of polynuclear aromatic hydrocarbons (PAHs), as well as high concentrations of petroleum hydrocarbons (PHCs) and volatile organics. Subsurface soil samples contained trace levels of solvents. Groundwater was not evaluated during the SI.

2.3.2 Remedial Investigation

Between October 1992 and February 1993, an RI was performed at SS-005 to characterize the magnitude and extent of groundwater and soil contamination at the site. The RI included the sampling of surface soil at 20 locations, near-surface soil at 7 locations, and subsurface soils at 3 boring locations. In addition, 3 monitoring wells were installed and groundwater



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SS-005 SITE FEATURES

FIGURE 3

was sampled during sampling events in January and April 1993. Sampling locations (Figure 4) were concentrated near a drainage swale running past the former location of the waste accumulation area and in proximity to the oil/water separator at Nose Dock 4. The analytical results from the sampled media were used to assess the current and potential future human and ecological health risks due to onsite contaminants.

2.4 Summary of Site Contamination

The contamination found at SS-005 can be evaluated by comparing the results to established requirements and guidelines.

The levels of contamination from organic compounds in soil (both surface and subsurface soil) were evaluated by comparing the detected concentrations to guidance values specified in the Technical Administrative Guidance Memorandum (TAGM) #4046 entitled, *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC 1994). As recommended by TAGM #4046, levels of contamination from inorganic compounds in soil were evaluated by comparing the detected concentrations to site background levels (URS 1995) referred to as To Be Considered values (TBCs). In addition, soil data were compared to the USEPA's soil screening levels (USEPA 1996).

For groundwater, contaminant levels were compared to the site groundwater applicable and/or relevant and appropriate requirements (ARARs), which are derived from the NYSDEC water quality standards and guidance values specified in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 (October 1993), New York State water standards (Title 6 of New York State Rules and Regulations, Part 703), USEPA drinking water standards (40 CFR 141), and site background TBCs (for metals only).

2.4.1 Surface Soil Contamination

Tables 1 and 2 and Figures 5A and 5B present a summary of the levels of contamination found in the SS-005 surface soil and a comparison to the guidance thresholds described in Section 2.4. No volatile organic compounds (VOCs), pesticides, or polychlorinated biphenyls (PCBs) were present above the guideline values. Six semivolatile organic compounds (SVOCs)[benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene], all of which are PAHs, and seven metals (arsenic, barium, beryllium, cadmium, chromium, lead, and zinc) were detected above their respective guidance values.

In general, the most frequently detected SVOCs with the highest concentrations were found at the southeastern end of the drainage swale.

2.4.2 Subsurface Soil Contamination

Subsurface soil samples were collected between 2 feet and 7 feet below ground surfaces (bgs). In general, VOCs and SVOCs were detected infrequently in the subsurface soil samples. Tables 1 and 2 and Figure 6 present a summary of the levels of contamination found in the SS-005 subsurface soil and a comparison to the respective soil guidance values (see Section 2.4). No pesticides or PCBs were present above guidance thresholds. However, two VOCs [methylene chloride and xylene (total)], three SVOCs [phenol, benzo(a)pyrene, and dibenzo(a,h)anthracene], and five metals (barium, cadmium, chromium, nickel, and zinc) exceeded their respective guidance values. All of the VOC and SVOC results that exceeded their guidance thresholds were obtained from samples at the southeastern end of the drainage swale.

2.4.3 Comparison of Soil Data to SSLs

USEPA site-specific soil screening levels (SSLs) were calculated for the chemicals of concern at SS-006 (USEPA 1996). These SSLs are compared to the soil data in Table 3. Both surface and subsurface soils were considered in the analysis. SSL exceedances were determined by using the smallest SSL threshold from ingestion, inhalation, or migration to groundwater (with a dilution factor of 20) pathways, as seen in Table 3. One VOC (methlyene chloride), seven SVOCs (2,4-dinitrotoluene, carbazole, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene,

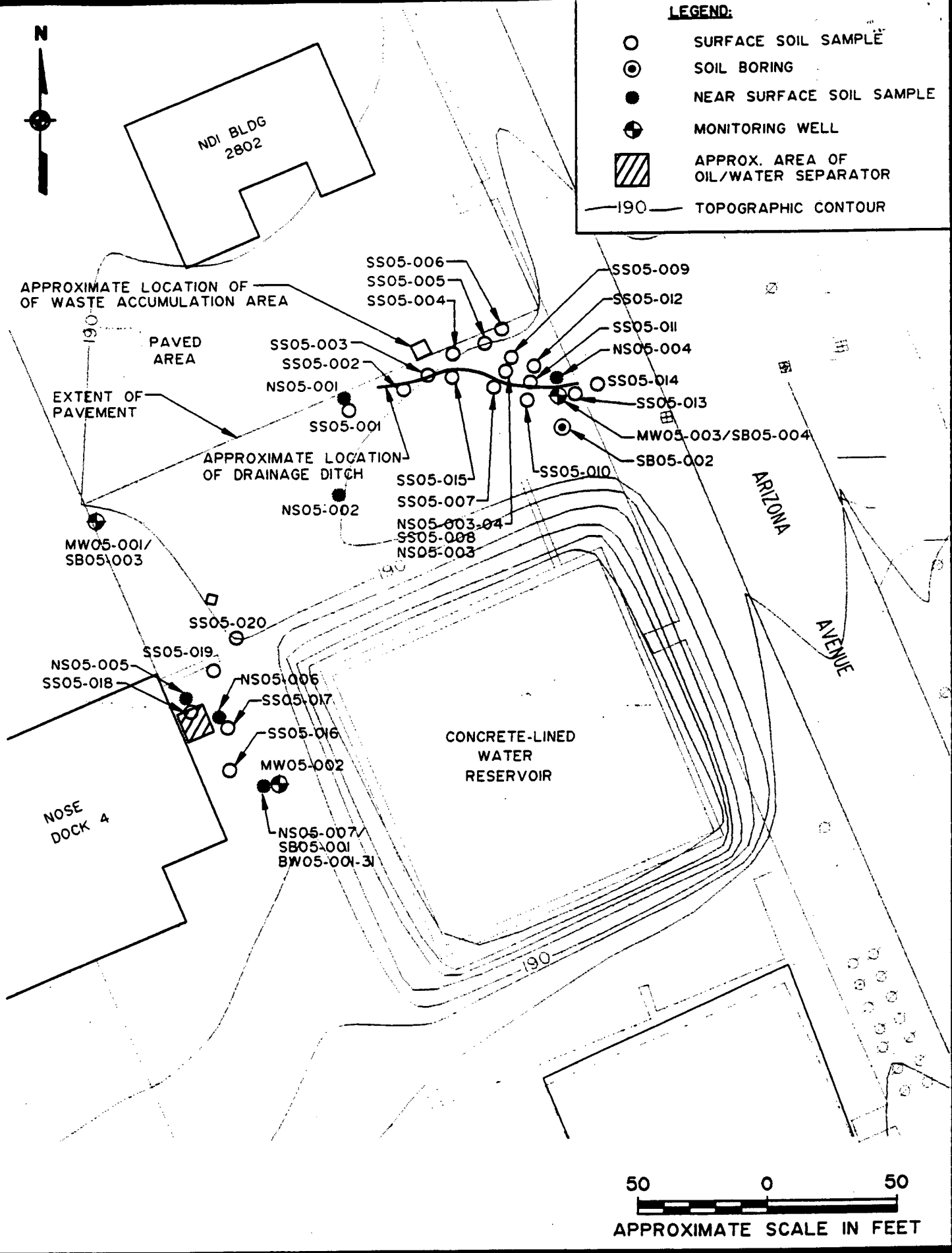

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FIGURE 4

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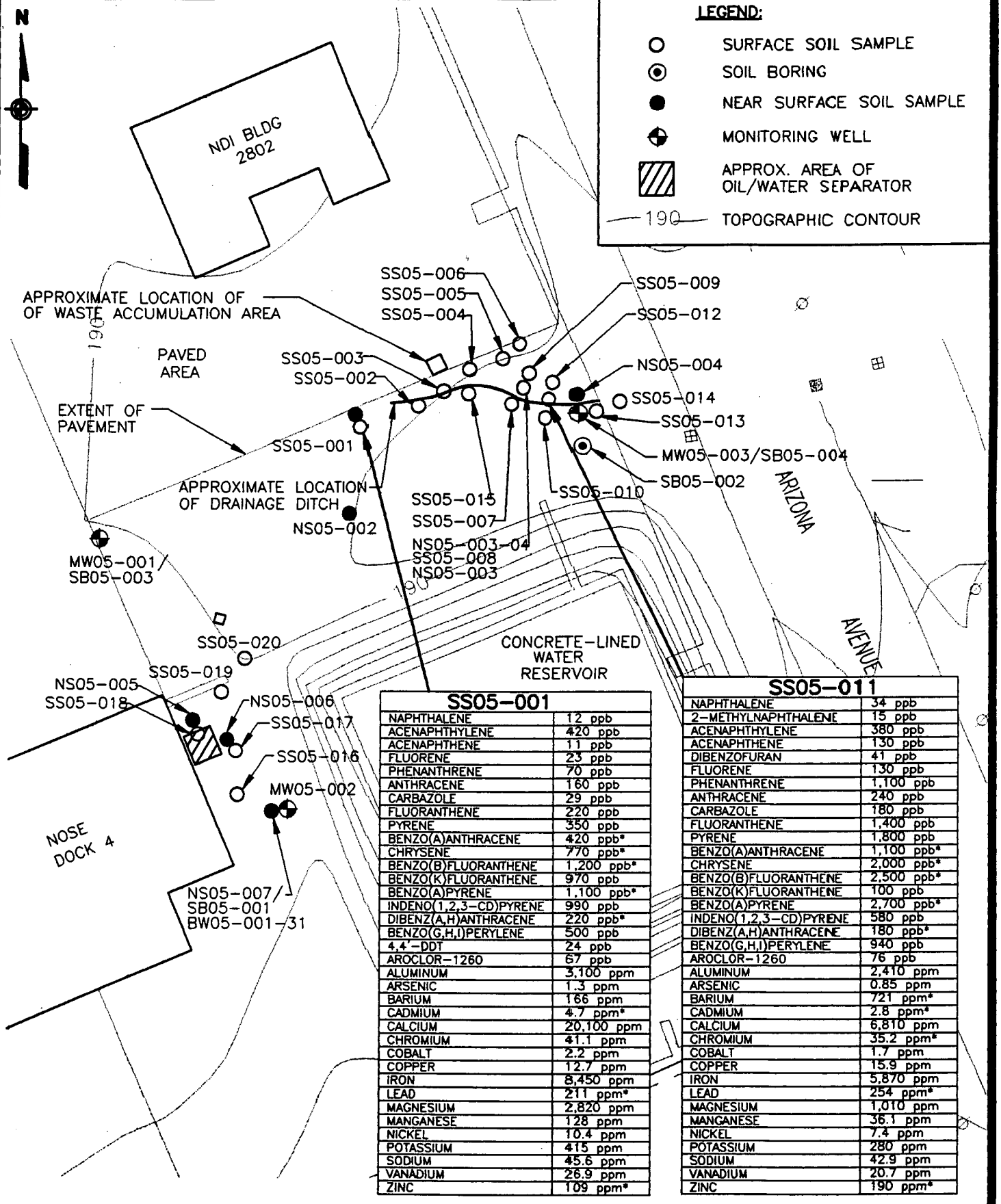

SS05-001	
NAPHTHALENE	12 ppb
ACENAPHTHYLENE	420 ppb
ACENAPHTHENE	11 ppb
FLUORENE	23 ppb
PHENANTHRENE	70 ppb
ANTHRACENE	160 ppb
CARBAZOLE	29 ppb
FLUORANTHENE	220 ppb
PYRENE	350 ppb
BENZO(A)ANTHRACENE	420 ppb*
CHRYSENE	770 ppb*
BENZO(B)FLUORANTHENE	1,200 ppb*
BENZO(K)FLUORANTHENE	970 ppb
BENZO(A)PYRENE	1,100 ppb*
INDENO(1,2,3-CD)PYRENE	990 ppb
DIBENZ(A,H)ANTHRACENE	220 ppb*
BENZO(G,H,I)PERYLENE	500 ppb
4,4'-DDT	24 ppb
AROCLOR-1260	67 ppb
ALUMINUM	3,100 ppm
ARSENIC	1.3 ppm
BARIUM	166 ppm
CADMIUM	4.7 ppm*
CALCIUM	20,100 ppm
CHROMIUM	41.1 ppm
COBALT	2.2 ppm
COPPER	12.7 ppm
IRON	8,450 ppm
LEAD	211 ppm*
MAGNESIUM	2,820 ppm
MANGANESE	128 ppm
NICKEL	10.4 ppm
POTASSIUM	415 ppm
SODIUM	45.6 ppm
VANADIUM	26.9 ppm
ZINC	109 ppm*

SS05-011	
NAPHTHALENE	34 ppb
2-METHYLNAPHTHALENE	15 ppb
ACENAPHTHYLENE	380 ppb
ACENAPHTHENE	130 ppb
DIBENZOFURAN	41 ppb
FLUORENE	130 ppb
PHENANTHRENE	1,100 ppb
ANTHRACENE	240 ppb
CARBAZOLE	180 ppb
FLUORANTHENE	1,400 ppb
PYRENE	1,800 ppb
BENZO(A)ANTHRACENE	1,100 ppb*
CHRYSENE	2,000 ppb*
BENZO(B)FLUORANTHENE	2,500 ppb*
BENZO(K)FLUORANTHENE	100 ppb
BENZO(A)PYRENE	2,700 ppb*
INDENO(1,2,3-CD)PYRENE	580 ppb
DIBENZ(A,H)ANTHRACENE	180 ppb*
BENZO(G,H,I)PERYLENE	940 ppb
AROCLOR-1260	76 ppb
ALUMINUM	2,410 ppm
ARSENIC	0.85 ppm
BARIUM	721 ppm*
CADMIUM	2.8 ppm*
CALCIUM	6,810 ppm
CHROMIUM	35.2 ppm*
COBALT	1.7 ppm
COPPER	15.9 ppm
IRON	5,870 ppm
LEAD	254 ppm*
MAGNESIUM	1,010 ppm
MANGANESE	36.1 ppm
NICKEL	7.4 ppm
POTASSIUM	280 ppm
SODIUM	42.9 ppm
VANADIUM	20.7 ppm
ZINC	190 ppm*

50 0 50

APPROXIMATE SCALE IN FEET

*EXCEEDS TBCs

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PLATTSBURGH A.F.B. DETECTED SURFACE SOIL ANALYTICAL RESULTS

FIGURE 5A

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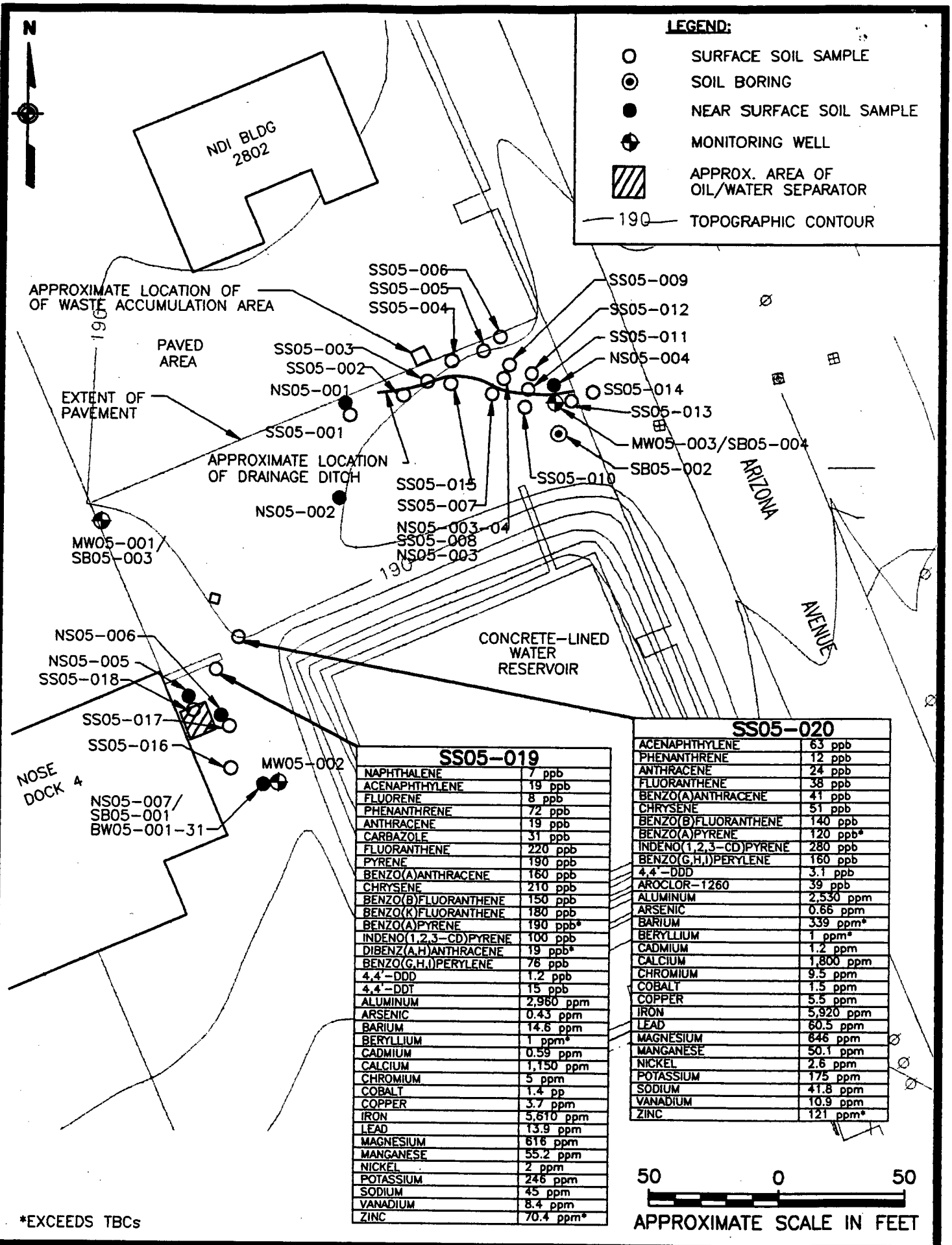

SS05-019

NAPHTHALENE	7 ppb
ACENAPHTHYLENE	19 ppb
FLUORENE	8 ppb
PHENANTHRENE	72 ppb
ANTHRACENE	19 ppb
CARBAZOLE	31 ppb
FLUORANTHENE	220 ppb
PYRENE	190 ppb
BENZO(A)ANTHRACENE	160 ppb
CHRYSENE	210 ppb
BENZO(B)FLUORANTHENE	150 ppb
BENZO(K)FLUORANTHENE	180 ppb
BENZO(A)PYRENE	190 ppb*
INDENO(1,2,3-CD)PYRENE	100 ppb
DIBENZ(A,H)ANTHRACENE	19 ppb*
BENZO(G,H,I)PERYLENE	76 ppb
4,4'-DDD	1.2 ppb
4,4'-DDT	15 ppb
ALUMINUM	2,980 ppm
ARSENIC	0.43 ppm
BARIUM	14.6 ppm
BERYLLIUM	1 ppm*
CADMIUM	0.59 ppm
CALCIUM	1,150 ppm
CHROMIUM	5 ppm
COBALT	1.4 pp
COPPER	3.7 ppm
IRON	5,610 ppm
LEAD	13.9 ppm
MAGNESIUM	616 ppm
MANGANESE	55.2 ppm
NICKEL	2 ppm
POTASSIUM	246 ppm
SODIUM	45 ppm
VANADIUM	8.4 ppm
ZINC	70.4 ppm*

SS05-020

ACENAPHTHYLENE	63 ppb
PHENANTHRENE	12 ppb
ANTHRACENE	24 ppb
FLUORANTHENE	38 ppb
BENZO(A)ANTHRACENE	41 ppb
CHRYSENE	51 ppb
BENZO(B)FLUORANTHENE	140 ppb
BENZO(A)PYRENE	120 ppb*
INDENO(1,2,3-CD)PYRENE	280 ppb
BENZO(G,H,I)PERYLENE	160 ppb
4,4'-DDD	3.1 ppb
AROCLOR-1260	39 ppb
ALUMINUM	2,530 ppm
ARSENIC	0.66 ppm
BARIUM	339 ppm*
BERYLLIUM	1 ppm*
CADMIUM	1.2 ppm
CALCIUM	1,800 ppm
CHROMIUM	9.5 ppm
COBALT	1.5 ppm
COPPER	5.5 ppm
IRON	5,920 ppm
LEAD	60.5 ppm
MAGNESIUM	646 ppm
MANGANESE	50.1 ppm
NICKEL	2.6 ppm
POTASSIUM	175 ppm
SODIUM	41.8 ppm
VANADIUM	10.9 ppm
ZINC	121 ppm*

*EXCEEDS TBCs

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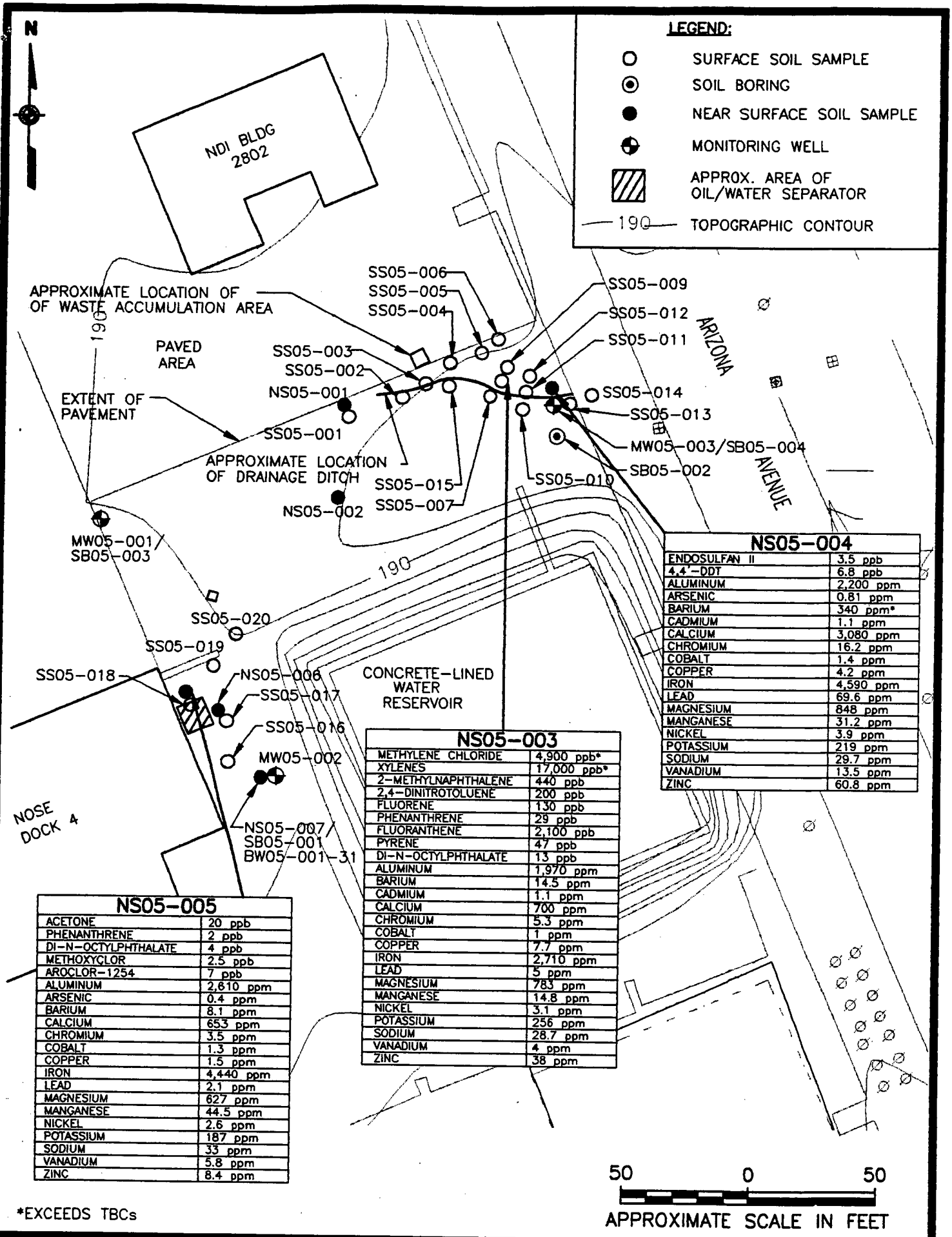
FIGURE 5B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N
LEGEND:
SURFACE SOIL SAMPLE
SOIL BORING
NEAR SURFACE SOIL SAMPLE
MONITORING WELL
APPROX. AREA OF OIL/WATER SEPARATOR
190 TOPOGRAPHIC CONTOUR
NDI BLDG 2802
APPROXIMATE LOCATION OF OF WASTE ACCUMULATION AREA
PAVED AREA
EXTENT OF PAVEMENT
APPROXIMATE LOCATION OF DRAINAGE DITCH
CONCRETE-LINED WATER RESERVOIR
ARIZONA AVENUE
NOSE DOCK 4
SS05-001
SS05-002
SS05-003
SS05-004
SS05-005
SS05-006
SS05-007
SS05-009
SS05-010
SS05-011
SS05-012
SS05-013
SS05-014
SS05-015
SS05-016
SS05-017
SS05-018
SS05-019
SS05-020
NS05-001
NS05-002
NS05-006
NS05-007/SB05-001/BW05-001-31
MW05-001/SB05-003
MW05-002
MW05-003/SB05-004
SB05-002
NS05-004
ENDOSULFAN II 3.5 ppb
4,4'-DDT 6.8 ppb
ALUMINUM 2,200 ppm
ARSENIC 0.81 ppm
BARIUM 340 ppm*
CADMIUM 1.1 ppm
CALCIUM 3,080 ppm
CHROMIUM 16.2 ppm
COBALT 1.4 ppm
COPPER 4.2 ppm
IRON 4,590 ppm
LEAD 69.6 ppm
MAGNESIUM 848 ppm
MANGANESE 31.2 ppm
NICKEL 3.9 ppm
POTASSIUM 219 ppm
SODIUM 29.7 ppm
VANADIUM 13.5 ppm
ZINC 60.8 ppm
NS05-003
METHYLENE CHLORIDE 4,900 ppb*
XYLENES 17,000 ppb*
2-METHYLNAPHTHALENE 440 ppb
2,4-DINITROTOLUENE 200 ppb
FLUORENE 130 ppb
PHENANTHRENE 29 ppb
FLUORANTHENE 2,100 ppb
PYRENE 47 ppb
DI-N-OCTYLPHTHALATE 13 ppb
ALUMINUM 1,970 ppm
BARIUM 14.5 ppm
CADMIUM 1.1 ppm
CALCIUM 700 ppm
CHROMIUM 5.3 ppm
COBALT 1 ppm
COPPER 7.7 ppm
IRON 2,710 ppm
LEAD 5 ppm
MAGNESIUM 783 ppm
MANGANESE 14.8 ppm
NICKEL 3.1 ppm
POTASSIUM 256 ppm
SODIUM 28.7 ppm
VANADIUM 4 ppm
ZINC 38 ppm
NS05-005
ACETONE 20 ppb
PHENANTHRENE 2 ppb
DI-N-OCTYLPHTHALATE 4 ppb
METHOXYCLOR 2.5 ppb
AROCLOR-1254 7 ppb
ALUMINUM 2,610 ppm
ARSENIC 0.4 ppm
BARIUM 8.1 ppm
CALCIUM 653 ppm
CHROMIUM 3.5 ppm
COBALT 1.3 ppm
COPPER 1.5 ppm
IRON 4,440 ppm
LEAD 2.1 ppm
MAGNESIUM 627 ppm
MANGANESE 44.5 ppm
NICKEL 2.6 ppm
POTASSIUM 187 ppm
SODIUM 33 ppm
VANADIUM 5.8 ppm
ZINC 8.4 ppm
50 0 50
APPROXIMATE SCALE IN FEET
*EXCEEDS TBCs
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DETECTED NEAR-SURFACE SOIL ANALYTICAL RESULTS
FIGURE 6
AC-12076

TABLE 1

SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SS-005
SURFACE AND SUBSURFACE SOILS (1)

ANALYTE	TYPE	GUIDANCE VALUES* (µg/kg)	SURFACE SOILS				SUBSURFACE SOILS (2)			
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs
Acetone	VOC	200	3/21	3	7	0/21	2/19	20	27	0/19
Methylene Chloride	VOC	100	--	--	--	--	2/19	4	4900	1/19
Toluene	VOC	1,500	--	--	--	--	2/19	4	8	0/19
Xylene (total)	VOC	1,200	1/21	2	2	0/21	1/19	17000	17000	1/19
Phenol	SVOC	30	--	--	--	--	1/19	423	423	1/19
4-Methylphenol	SVOC	900	--	--	--	--	--	--	--	--
Benzoic Acid	SVOC	--	7/21	39	104	--	7/19	21	94	--
Naphthalene	SVOC	13,000	3/21	7	34	0/21	--	--	--	--
2-Methylnaphthalene	SVOC	36,400	1/21	15	15	0/21	1/19	440	440	0/19
Acenaphthylene	SVOC	41,000	10/21	16	2,036	0/21	3/19	4	24	0/19
Acenaphthene	SVOC	50,000	4/21	11	157	0/21	--	--	--	--
2,4-Dinitrotoluene	SVOC	--	--	--	--	--	1/19	200	200	--
Diethylphthalate	SVOC	7,100	--	--	--	--	1/19	20	20	0/19
Dibenzofuran	SVOC	6,200	1/21	41	41	0/21	--	--	--	--
Fluorene	SVOC	50,000	5/21	8	130	0/21	1/19	130	130	0/19
Phenanthrene	SVOC	50,000	11/21	12	1,572	0/21	7/19	2	58	0/19
Anthracene	SVOC	50,000	10/21	19	1,286	0/21	2/19	14	18	0/19
Carbazole	SVOC	--	10/21	17	1,363	--	1/19	21	21	--
Di-n-butylphthalate	SVOC	8,100	1/21	16	16	0/21	--	--	--	--
Fluoranthene	SVOC	50,000	17/21	15	4,612	0/21	6/19	21	2100	0/19
Pyrene	SVOC	50,000	17/21	14	5,145	0/21	6/19	22	132	0/19

-- Indicates analyte not detected

* Values from NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994 unless otherwise indicated.

- Exceeds Guidance Value

1 - For samples with both level III and level IV analytical data, only level III data were considered in the statistical summary.

2 - Includes near-surface soil samples.

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

PEST = Pesticide

PCB = Polychlorinated Biphenyl

TABLE 1 (continued)

SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SS-005
SURFACE AND SUBSURFACE SOILS (1)

ANALYTE	TYPE	GUIDANCE VALUES* (µg/kg)	SURFACE SOILS				SUBSURFACE SOILS (2)			
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs
Benzo(a)anthracene	SVOC	224	12/21	19	3,537	6/21	3/19	14	51	0/19
Chrysene	SVOC	400	13/21	26	4,823	6/21	4/19	21	99	0/19
Di-n-octylphthalate	SVOC	50,000	--	--	--	--	3/19	4	13	0/19
bis(2-Ethylhexyl)phthalate	SVOC	50,000	12/21	33	371	0/21	--	--	--	--
Benzo(b)fluoranthene	SVOC	1,100	15/21	15	4,394	4/21	5/19	18	72	0/19
Benzo(k)fluoranthene	SVOC	1,100	16/21	15	5,573	3/21	5/19	20	82	0/19
Benzo(a)pyrene	SVOC	61	17/21	18	5,681	13/21	5/19	19	77	1/19
Indeno(1,2,3-cd)pyrene	SVOC	3,200	17/21	22	2,787	0/21	5/19	19	75	0/19
Dibenz(a,h)anthracene	SVOC	14	10/21	17	268	10/21	1/19	35	35	1/19
Benzo(g,h,i)perylene	SVOC	50,000	19/21	20	2,358	0/21	5/19	19	93	0/19
Endosulfan II	PEST	900	--	--	--	--	1/5	3.5	3.5	0/5
4,4'-DDD	PEST	2,900	2/4	1.2	3	0/4	--	--	--	--
4,4'-DDT	PEST	2,100	2/4	15	24	0/4	2/5	4.6	6.8	0/5
Methoxychlor	PEST	10,000	--	--	--	--	1/5	2.5	2.5	0/5
Aroclor-1254 (subsurface)	PCB	10,000	--	--	--	--	1/5	7	7	0/5
Aroclor-1260 (surface)	PCB	1,000	3/4	39	76	0/4	--	--	--	--

-- Indicates analyte not detected

* Values from NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994 unless otherwise indicated.

- Exceeds Guidance Value

1 - For samples with both level III and level IV analytical data, only level III data were considered in the statistical summary.

2 - Includes near-surface soil samples.

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

PEST = Pesticide

PCB = Polychlorinated Biphenyl

TABLE 2

SUMMARY OF INORGANIC COMPOUNDS DETECTED IN SS-005
SURFACE AND SUBSURFACE SOILS (1)

ANALYTE	TYPE	GUIDANCE VALUES* (mg/kg)	SURFACE SOILS				SUBSURFACE SOILS (2)			
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (mg/kg)	DETECTED MAXIMUM CONCENTRATION (mg/kg)	FREQUENCY ABOVE TBCs	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (mg/kg)	DETECTED MAXIMUM CONCENTRATION (mg/kg)	FREQUENCY ABOVE TBCs
Aluminum	MET	8,510 †	21/21	1324	7,453	0/21	19/19	794	3524	0/19
Arsenic	MET	7.5	5/21	0.43	55	1/21	3/19	0.34	0.81	0/19
Barium	MET	300	9/21	14.6	721	2/21	7/19	7.9	340	1/19
Beryllium	MET	0.74 †	2/21	1	1	2/21	--	--	--	--
Cadmium	MET	1.3 †	16/21	0.59	10	12/21	5/19	1	2	1/19
Calcium	MET	30,200 †	21/21	879	20,100	0/21	11/19	583	4104	0/19
Chromium	MET	19.5 †	21/21	3	44	7/21	18/19	2.9	36	1/19
Cobalt	MET	30	4/21	1.4	2	0/21	5/19	1	1.5	0/19
Copper	MET	41.1 †	14/21	3.7	17	0/21	7/19	1.5	7.7	0/19
Iron	MET	36,700 †	21/21	2935	10,567	0/21	19/19	1037	6552	0/19
Lead	MET	79.4 †	17/21	13.9	254	7/21	7/19	2.1	75	0/19
Magnesium	MET	3,340 †	10/21	616	2,820	0/21	10/19	622	1911	0/19
Manganese	MET	474 †	21/21	19	128	0/21	19/19	8	107	0/19
Nickel	MET	13	10/21	2	10.4	0/21	7/19	2.1	83	2/19
Potassium	MET	929 †	4/21	175	415	0/21	5/19	162	256	0/19
Sodium	MET	520 †	4/21	41.8	45.6	0/21	5/19	26	39.9	0/19
Vanadium	MET	150	19/21	7	34	0/21	9/19	4	13.5	0/19
Zinc	MET	63.4 †	21/21	11	190	9/21	17/19	7	433	2/19

-- Indicates analyte not detected

* Values from NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994 unless otherwise indicated.

Exceeds Guidance Value - Exceeds Guidance Value

† Soil background "To Be Considered" (TBC) value from "Background Surface Soil & Groundwater Survey for the Plattsburgh Air Force Base" (URS, 1995).

1 - For samples with both level III and level IV analytical data, only level III data were considered in the statistical summary.

2 - Includes near-surface soil samples.

MET = Metal

TABLE 3
SITE-SPECIFIC USEPA SOIL SCREENING LEVELS BY "SIMPLE METHOD"

SUMMARY OF SOIL SCREENING LEVEL CALCULATIONS

CHEMICAL	TYPE	SOIL SCREENING LEVELS (mg/kg)			SS-005 AREA SOIL SAMPLES MAXIMUM DETECTED VALUES (mg/kg)
		INGESTION	INHALATION	MIGRATION TO GROUNDWATER*	
Acetone	VOC	7,821	4,583	16.1	0.027
Methylene Chloride	VOC	85.4	12.9	0.023	4.90
Toluene	VOC	15,643	654	11.8	0.008
Xylene (total)(1)	VOC	156,429	413	189	17
Phenol	SVOC	46,929	NV	103	0.423
4-Methylphenol	SVOC	NV	NV	NV	NV
Benzoic Acid	SVOC	312,857	NV	400	0.104
Naphthalene	SVOC	3,129	NV	84.0	0.034
2-Methylnaphthalene	SVOC	NV	NV	NV	0.440
Acenaphthylene	SVOC	NV	NV	NV	2.04
Acenaphthene	SVOC	4,693	NV	574	0.157
2,4-Dinitrotoluene	SVOC	0.942	NV	0.001	0.200
Diethylphthalate	SVOC	62,571	1,974	466	0.020
Dibenzofuran	SVOC	NV	NV	NV	0.041
Fluorene	SVOC	3,129	NV	556	0.130
Phenanthrene	SVOC	NV	NV	NV	1.57
Anthracene	SVOC	23,464	NV	11,840	1.29
Carbazole	SVOC	32.0	NV	0.558	1.36
Di-n-butylphthalate	SVOC	7,821	2,279	2,279	0.016
Fluoranthene	SVOC	3,129	NV	4,284	4.61
Pyrene	SVOC	2,346	NV	4,204	5.15
Benzo(a)anthracene	SVOC	0.877	NV	1.59	3.54
Chrysene	SVOC	87.7	NV	159	4.82
Di-n-octylphthalate	SVOC	1,564	9,984	9,984	0.013
bis(2-Ethylhexyl)phthalate	SVOC	45.7	30,804	3,624	0.371
Benzo(b)fluoranthene	SVOC	0.877	NV	4.92	4.39
Benzo(k)fluoranthene	SVOC	8.77	NV	49.2	5.57
Benzo(a)pyrene	SVOC	0.088	NV	8.16	5.68
Indeno(1,2,3-cd)pyrene	SVOC	0.877	NV	13.9	2.79
Dibenz(a,h)anthracene	SVOC	0.088	NV	1.52	0.268
Benzo(g,h,i)perylene	SVOC	NV	NV	NV	2.36
Endosulfan II	PEST	469	NV	17.9	0.004
4,4'-DDD	PEST	2.67	NV	16.0	0.003
4,4'-DDT	PEST	1.88	395	31.6	0.024
Methoxychlor	PEST	391	NV	156	0.025
Aroclor-1254 (subsurface)	PCB	NV	NV	NV	0.007
Aroclor-1260 (surface)	PCB	NV	NV	NV	0.076
Aluminum	MET	NV	NV	NV	7,453
Arsenic	MET	0.427	747	29.2	55.0
Barium	MET	5,475	688,286	1,648	340
Beryllium	MET	0.149	1,338	63	1.0
Cadmium	MET	**78.2**	1,784	7.52	10.00
Calcium	MET	NV	NV	NV	20,100
Chromium	MET	**391**	268	38.4	44.0
Cobalt	MET	NV	NV	NV	2.00
Copper	MET	NV	NV	NV	17.0
Iron	MET	NV	NV	NV	10,567
Lead	MET	400**	NV	NV	254
Magnesium	MET	NV	NV	NV	2,820
Manganese	MET	NV	NV	NV	128
Nickel	MET	**1,564**	13,383	130	83.0
Potassium	MET	NV	NV	NV	415
Sodium	MET	NV	NV	NV	45.6
Vanadium	MET	548	NV	6,001	34.0
Zinc	MET	23,464	NV	12,440	433

NOTES:

NV = No Value

* With a DAF of 20.

Exceeds soil screening levels.

(1) The values represent O-Xylene because total xylenes are not considered in the TBD.

** A screening level of 400 mg/kg has been set for lead based on "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," (USEPA, 1994).

Bold indicates that calculated values correspond to a noncancer hazard quotient of 1.

REFERENCE:

USEPA Soil Screening Guidance: Technical Background Document

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indeno(1,2,3-cd)pyrene, and dibenz(a,h,) anthracene), and four metals (arsenic, beryllium, cadmium, and chromium) exceeded their respective guidance values.

2.4.4 Groundwater Contamination

All VOCs and SVOCs present in surface and subsurface soil samples that exceeded the NYSDEC soil cleanup guidelines either were not detected in groundwater at the site, or were detected below the ARARs. A summary of the results compared to the guideline values is given in Table 4 and Figure 7. Three metals (aluminum, iron, and manganese) were detected in groundwater at concentrations above the ARARs. However, these metals were not detected above background concentrations in the soil at SS-005. Therefore, it appears that the soils at SS-005 are not a source of groundwater contamination.

3.0 SUMMARY OF SITE RISKS

During the RI, a baseline HRA was conducted to estimate the current and future risks at the site if no remedial action was taken. Possible human health and ecological risks were evaluated. Due to their close proximity and potentially overlapping areas of contamination, sites SS-005 and SS-006 (the aerospace ground equipment soil operable unit) were evaluated as one area. Chemicals of potential concern (CPCs) for the two sites (Table 5) were chosen based on frequency of detection, chemical-specific toxicity information, and exceedance of background levels (for inorganics only).

3.1 Human Health Risk Assessment

Five steps are followed in assessing site-related human health risks: *Hazard Identification* - determines the chemicals of concern at the site based on toxicity, frequency of occurrence, and concentration. *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, and the pathways (e.g., dermal contact with soil) by which humans potentially are exposed. *Toxicity Assessment* - determines adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization* - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. *Uncertainty Analysis* - qualifies the quantitative results of the risk assessment based upon the uncertainty associated with the assumptions made in the analysis. Generally, assumptions made in the assessment process are conservative and yield a reasonable overestimation, rather than an underestimation of risk.

The human HRA follows federal guidelines to estimate the potential carcinogenic (i.e., cancer-causing) and adverse noncarcinogenic health effects due to potential exposure to site contaminants of concern from assumed exposure scenarios and pathways. These guidelines consider an excess upper bound lifetime cancer risk to an individual to be acceptable if it is calculated to be less than one-in-one million, and risks in the range of one-in-ten thousand to one-in-one million are evaluated on a case by case basis. The guidance also specifies a maximum health hazard index (which reflects noncarcinogenic effects for a human receptor) less than or equal to 1.0. The Hazard Index is a representation of risk based on a quotient or ratio of chronic daily intake to a reference (safe) dose. A hazard index (HI) greater than 1.0 indicates a potential of adverse noncarcinogenic health effects.

Two human exposure scenarios were evaluated as part of the human HRA for site SS-005 and are summarized in Table 6.

A) Current Scenario - This scenario assumes that civilian personnel conducting landscape work and trespassers may come in contact with contaminated soils. Potential routes of exposure for this scenario include incidental ingestion of and dermal contact with surface soil. Because there is no current use of the groundwater at SS-005, there is little likelihood of human contact with the contaminants in this medium under this scenario.

B) Future Scenario - This scenario accounts for two potential future activities at the SS-005 site:

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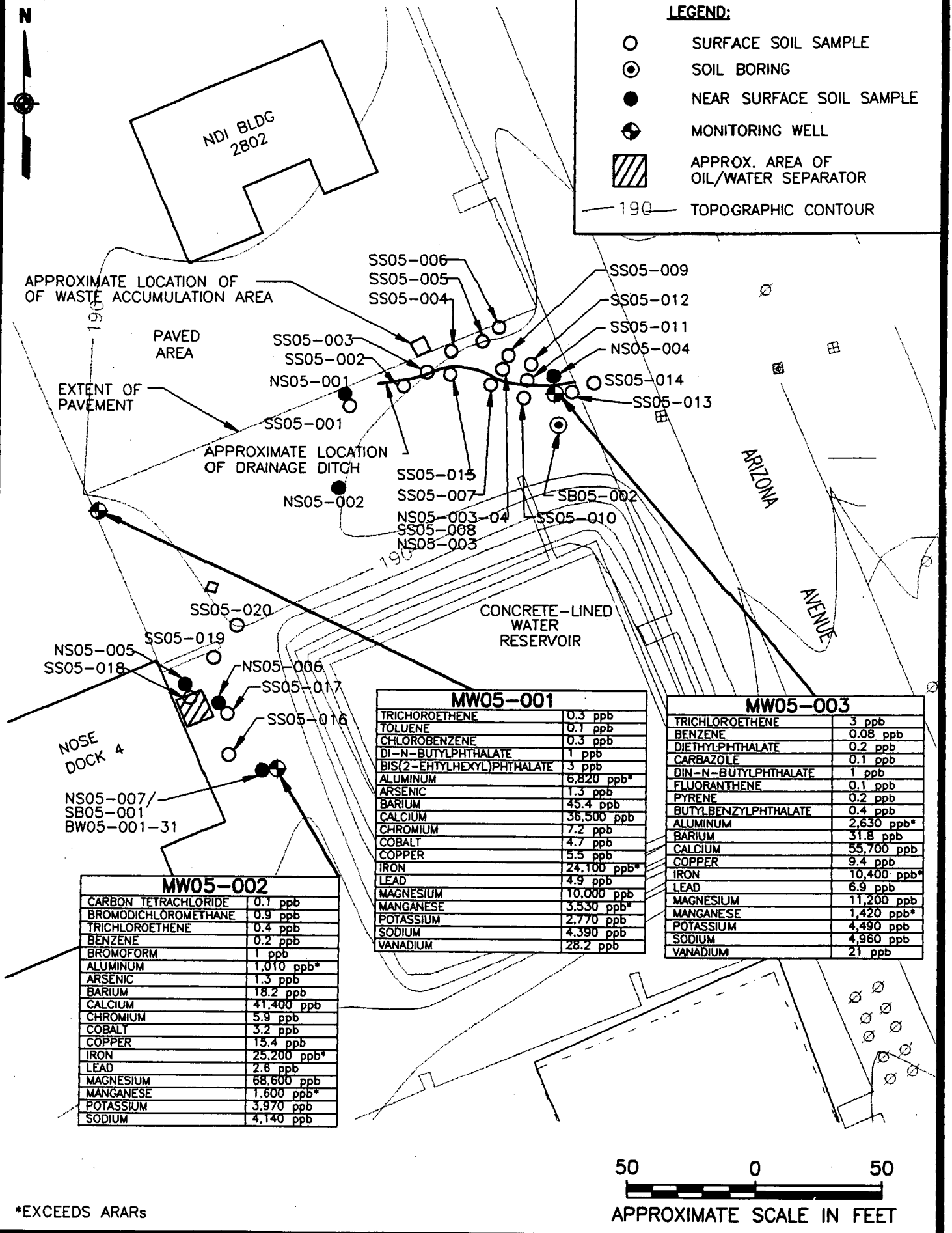

MW05-001	
TRICHOROETHENE	0.3 ppb
TOLUENE	0.1 ppb
CHLOROBENZENE	0.3 ppb
DI-N-BUTYLPHTHALATE	1 ppb
BIS(2-EHTYLHEXYL)PHTHALATE	3 ppb
ALUMINUM	6,820 ppb*
ARSENIC	1.3 ppb
BARIUM	45.4 ppb
CALCIUM	36,500 ppb
CHROMIUM	7.2 ppb
COBALT	4.7 ppb
COPPER	5.5 ppb
IRON	24,100 ppb*
LEAD	4.9 ppb
MAGNESIUM	10,000 ppb
MANGANESE	3,530 ppb*
POTASSIUM	2,770 ppb
SODIUM	4,390 ppb
VANADIUM	28.2 ppb

MW05-003	
TRICHLOROETHENE	3 ppb
BENZENE	0.08 ppb
DIETHYLPHTHALATE	0.2 ppb
CARBAZOLE	0.1 ppb
DIN-N-BUTYLPHTHALATE	1 ppb
FLUORANTHENE	0.1 ppb
PYRENE	0.2 ppb
BUTYLBENZYLPHTHALATE	0.4 ppb
ALUMINUM	2,630 ppb*
BARIUM	31.8 ppb
CALCIUM	55,700 ppb
COPPER	9.4 ppb
IRON	10,400 ppb*
LEAD	6.9 ppb
MAGNESIUM	11,200 ppb
MANGANESE	1,420 ppb*
POTASSIUM	4,490 ppb
SODIUM	4,960 ppb
VANADIUM	21 ppb

MW05-002	
CARBON TETRACHLORIDE	0.1 ppb
BROMODICHLOROMETHANE	0.9 ppb
TRICHLOROETHENE	0.4 ppb
BENZENE	0.2 ppb
BROMOFORM	1 ppb
ALUMINUM	1,010 ppb*
ARSENIC	1.3 ppb
BARIUM	18.2 ppb
CALCIUM	41,400 ppb
CHROMIUM	5.9 ppb
COBALT	3.2 ppb
COPPER	15.4 ppb
IRON	25,200 ppb*
LEAD	2.6 ppb
MAGNESIUM	68,600 ppb
MANGANESE	1,600 ppb*
POTASSIUM	3,970 ppb
SODIUM	4,140 ppb

50 0 50

APPROXIMATE SCALE IN FEET

*EXCEEDS ARARs

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FIGURE 7

TABLE 4

CHARACTER OF GROUNDWATER CONTAMINATION

ANALYTE	TYPE	ARAR VALUE (µg/L)	FREQUENCY OF DETECTION	DETECTED MAXIMUM CONCENTRATION (µg/L)
Carbon Tetrachloride	VOC	5.0 *	1/6	0.1
Bromodichloromethane	VOC	50 *	1/6	0.9
Trichloroethene	VOC	5.0 *	3/6	3.0
Benzene	VOC	0.7 *	2/6	0.2
Bromoform	VOC	50 *	1/6	1.0
Toluene	VOC	5.0 *	1/6	0.1
Chlorobenzene	VOC	5.0 *	1/6	0.3
Diethylphthalate	SVOC	50 *	1/6	0.2
Carbazole	SVOC	NR	1/51/5	0.1
Di-n-butylphthalate	SVOC	50 *	2/6	1.0
Fluoranthene	SVOC	50 *	1/5	0.1
Pyrene	SVOC	50 *	1/5	0.2
Butylbenzylphthalate	SVOC	50 *	2/5	0.4
bis(2-Ethylhexyl)phthalate	SVOC	50 *	1/5	3.0
Aluminum	METAL	50 to 200***	3/3	6,820
Arsenic	METAL	25 *	4/6	8.1
Barium	METAL	1,000 *	5/6	45.4
Cadmium	METAL	5.0 **	1/6	2.1
Calcium	METAL	NR	3/3	55,700
Chromium	METAL	50 *	2/6	7.2
Cobalt	METAL	NR	2/3	4.7
Copper	METAL	200 *	3/3	15.4
Iron	METAL	300 *	3/3	25,200
Lead	METAL	15 **	6/6	6.9
Magnesium	METAL	35,000 *	3/3	11,200
Manganese	METAL	50 ***	3/3	3,530
Potassium	METAL	NR	3/3	4,490
Sodium	METAL	20,000 *	3/3	4,960
Vanadium	METAL	NR	2/3	28.2

* - NYSDEC Water Quality Standards and Guidance Values, TOGS 1.1.1, October 1993

** - USEPA Drinking Water Standards 40 CFR 141

*** - USEPA Secondary Maximum Contaminant Levels 40 CFR 143

- Exceeds Guidance Value

Highlighted concentration indicate exceedances of guidance value

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

MET = Metal

TABLE 5

CHEMICALS OF POTENTIAL CONCERN FOR SS-005 AND SS-006
SURFACE AND SUBSURFACE SOILS

ANALYTE	TYPE	SURFACE SOILS		SUBSURFACE SOILS	
		FREQUENCY OF DETECTION	CHEMICAL OF CONCERN	FREQUENCY OF DETECTION	CHEMICAL OF CONCERN
Methylene Chloride	VOC	--		2/24	X
Trichloroethene	VOC	1/30		--	
Toluene	VOC	--		2/24	X
Tetrachloroethene	VOC	1/30		--	
Xylene (total)	VOC	1/30		1/24	
Acenaphthene	SVOC	4/30	X	1/24	X
Acenaphthylene	SVOC	10/30	X	3/24	
Anthracene	SVOC	12/30	X	2/22	X
Benzoic Acid	SVOC	12/30	X	11/24	
Benzo(a)anthracene	SVOC	17/30	X	5/24	X
Benzo(b)fluoranthene	SVOC	22/30	X	6/24	X
Benzo(k)fluoranthene	SVOC	22/30	X	6/24	X
Benzo(a)pyrene	SVOC	23/30	X	4/24	X
Benzo(g,h,i)perylene	SVOC	22/30	X	5/24	
bis(2-Ethylhexyl)phthalate	SVOC	22/30	X	1/24	X
Butylbenzylphthalate	SVOC	1/30		--	
Carbazole	SVOC	12/30	X	2/24	
4-Chlorophenyl-phenylether	SVOC	--		1/24	
4-Chloro-3-methylphenol	SVOC	--		1/24	
Chrysene	SVOC	20/30	X	13/24	X
Dibenzofuran	SVOC	2/30	X	--	
Dibenz(a,h)anthracene	SVOC	10/30	X	4/24	X
3,3-Dichlorobenzidine	SVOC	--		4/24	X
2,4-Dimethylphenol	SVOC	--		11/24	X
Dimethylphthalate	SVOC	--		3/24	X
2,4-Dinitrotoluene	SVOC	--		2/24	X
Di-n-butylphthalate	SVOC	--		7/24	X
2,6-Dinitrotoluene	SVOC	1/30		--	
Di-n-octylphthalate	SVOC	--		7/24	X
Fluoranthene	SVOC	24/30	X	8/24	X
Fluorene	SVOC	6/30	X	--	
Indeno(1,2,3-c,d)pyrene	SVOC	22/30	X	5/24	X
2-Methylnaphthalene	SVOC	3/30	X	--	
4-Methylphenol	SVOC	1/30		--	
Naphthalene	SVOC	3/30	X	--	
Pentachlorophenol	SVOC	--		7/24	X
Phenanthrene	SVOC	18/30	X	2/24	X
Phenol	SVOC	--		1/24	
Pyrene	SVOC	24/30	X	5/24	X

-- Indicates analyte not detected

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

TABLE 5 (cont'd)

CHEMICALS OF POTENTIAL CONCERN FOR SS-005 AND SS-006
SURFACE AND SUBSURFACE SOILS

ANALYTE	TYPE	SURFACE SOILS		SUBSURFACE SOILS	
		FREQUENCY OF DETECTION	CHEMICAL OF CONCERN	FREQUENCY OF DETECTION	CHEMICAL OF CONCERN
Aroclor-1254	PCB	--		1/6	X
Aroclor-1260	PCB	3/6	X	--	
4,4'-DDD	PEST	2/6	X	--	
4,4-DDT	PEST	2/6	X	2/6	X
Endosulfan II	PEST	--		1/6	X
Methoxychlor	PEST	--		1/6	X
Aluminum	METAL	30/30		24/24	
Antimony	METAL	25/30	X	18/24	X
Arsenic	METAL	29/30	X	23/24	X
Barium	METAL	30/30	X	24/24	X
Beryllium	METAL	26/30	X	18/24	X
Cadmium	METAL	29/30	X	21/24	X
Calcium	METAL	30/30		24/24	
Chromium	METAL	30/30	X	24/24	X
Cobalt	METAL	30/30		24/24	
Copper	METAL	30/30		24/24	
Iron	METAL	30/30		24/24	
Lead	METAL	30/30		24/24	
Magnesium	METAL	30/30		24/24	
Manganese	METAL	30/30		24/24	
Nickel	METAL	30/30	X	24/24	X
Potassium	METAL	30/30		24/24	
Selenium	METAL	25/30	X	18/24	X
Silver	METAL	25/30	X	18/24	X
Sodium	METAL	30/30		24/24	
Thallium	METAL	25/30		22/24	
Vanadium	METAL	30/30	X	24/24	
Zinc	METAL	30/30	X	24/24	X

-- Indicates analyte not detected
PEST = Pestiside
PCB = Polichlorinated Biphenyl
MET = Metal

TABLE 6

SITES SS-005 & SS-006 REMEDIAL INVESTIGATION
CANCER RISKS AND HAZARD INDICES FOR MULTIPLE HUMAN USE SCENARIOS

HUMAN HEALTH RISK ASSESSMENT

EXPOSURE PATHWAY	CURRENT USE		FUTURE USE					
	CIVILIAN LANDSCAPE WORKE TRESPASSER		CONSTRUCTION WORKER/ SITE WORKER		RESIDENT			
	HAZARD INDEX	CANCER RISK	HAZARD INDEX	CANCER RISK	HAZARD INDEX		CANCER RISK	
					ADULT	CHILD	ADULT	CHILD
Ingestion of Surface Soil	0.06	1.00E-05	0.00 *	1.00E-07	—	—	—	—
Dermal Contact with Surface Soil	0.01	2.00E-07	0.00 *	1.00E-08	—	—	—	—
Ingestion of Groundwater	—	—	0.20	3.00E-05	0.70	2.00	9.00E-05	5.00E-05
Dermal Contact with Groundwater	—	—	—	—	0.01	0.01	3.00E-07	1.00E-07
Inhalation of Chemicals in Vapors While Showering	—	—	0.00 *	2.00E-08	0.00 *	0.00 *	7.00E-14	6.00E-14
TOTAL EXPOSURE HAZARD INDEX	**0.07**	—	**0.20**	—	**0.71**	**2.01**	—	—
TOTAL EXPOSURE CANCER RISK	—	**1.02E-05**	—	**3.01E-05**	—	—	**9.03E-05**	**5.01E-05**

NOTES:

— Pathway not evaluated in the HRA

1E-05 = 0.00001 or one potential cancer case in 100,000.

* Less than 0.005

(1) *Future utility, maintenance or construction activities* may result in disrupted soil (e.g., excavation) which potentially could expose utility/construction workers to site contaminants in surface and subsurface soil. This exposure would be similar to that estimated for civilian landscape workers in the current exposure scenario (above) with the additional potential to ingest groundwater.

(2) *Future residential development* may occur, where adults and children would live in residences located on SS-005. The exposure routes for residents in this future scenario is based on the ingestion of groundwater and the inhalation of vapors and dermal contact from potable groundwater during showering. This assumption is very conservative given that the site has a readily-available public water supply and any future potential for residences at SS-005 likely would use the public supply of water over potable well water. In addition, given that the site is slated for industrial use (PARC 1995) its development for residential use is improbable.

For current land use, the total cancer risk for the civilian landscape worker/trespasser was estimated as 1×10^{-5}, which is within the potentially acceptable risk range established by current USEPA guidelines. For the hypothetical future land use, the total estimated cancer risks to a site/construction worker, an adult resident, and a child resident, were 3×10^{-5}, 9×10^{-5}, and 5×10^{-5}, respectively. These results are within the potentially acceptable USEPA specified range.

For the current land use, the total HI for the civilian landscape worker/trespasser was estimated to be 0.1. For hypothetical future land use, the total HIs for the utility/construction worker, resident adult, and resident child were 0.2, 0.7, and 2.0, respectively for SS-005. The future resident child HI is the only estimated index above the 1.0 for potential noncarcinogenic health effects.

The major impact to the HI for the future resident child case was the ingestion of small quantities of arsenic from drinking potable groundwater. However, the concentrations of arsenic found at SS-005 are below the ARARs. The arsenic and the other metals found in the groundwater at SS-005 were analyzed using unfiltered samples, which typically elevates the levels of metals reported due to the inclusion of suspended minerals with the groundwater. In addition, all the arsenic concentrations in the groundwater at SS-005 were more than 60 percent below the NYSDEC water quality criteria threshold of 25 μg/L (NYSDEC 1993) and more than 80 percent below the USEPA arsenic primary drinking water standard threshold of 50 μg/L (40 CFR 141). These water standards were set by the regulatory agencies to protect the public from arsenic's potential adverse noncarcinogenic health effects.

As stated above, the human HRA typically overestimates the hazards associated with potential exposure to contaminants and the scenario for the future resident child case is unlikely due to the availability of a public water supply for the SS-005 site. In addition, it is unlikely that SS-005 will be developed for residential use. Therefore, based on the drinking water standards and the SS-005 ARARs, exposure to the low levels of arsenic contamination in the groundwater for a potential future resident child is most likely negligible and poses very little risk.

3.2 Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *Problem Formulation* - a qualitative evaluation of contaminant release, migration, and fate; identification of CPCs, ecological receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. *Exposure Assessment* - a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement of the estimation of exposure point concentration. *Ecological Effects Assessment* - literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. *Risk Characterization* - a measurement of estimation of current adverse effects.

Sites SS-005, SS-006, and SS-017 (the Building 2774 Operable Unit) were combined for the ecological assessment due to their proximity to each other and their limited areal extent. A screening level ecological risk assessment was performed to assess the potential impact of exposure to contaminated surface soil on terrestrial organisms. The species evaluated for the site were the white-footed mouse, short-tailed shrew, and American robin. In addition, the terrestrial vegetation at the SS-005 site was evaluated.

Due to the large extent of paving, buildings, and structures at SS-005, a very limited habitat exists on site (less than 1/10 acre). The balance of the site is an open area of mowed grass which is unsuitable for mice, shrews, and robins to nest. The HRA concluded that it is unlikely that many species would feed exclusively in or inhabit the SS-005 site. The results of the assessment are expressed as an HI. An HI of less than or equal to 1.0 indicates limited potential for adverse health effects to ecological receptors.

Ecological risk calculations for an assumed scenario of resident receptors indicated that contaminants in the surface soil at the three sites present a possible risk to wildlife. Again, this scenario estimated potential adverse health risks based on the receptors nesting and feeding exclusively at SS-005, which is unrealistic. HIs for arsenic, lead, and barium were calculated to be between 1 and 17. HIs for other chemicals were calculated to be less than 1.0. The scenario used for this ecological risk assessment was unrealistic, including the assumption that nesting of the birds was possible without proper terrestrial vegetation at SS-005 and that feeding would occur only within SS-005, when range areas for the birds are far in excess of the available feeding areas. The ecological risk assessment concludes that, based on the limited habitat available at SS-005 and the unlikeliness that wildlife would utilize these areas to any extent, wildlife exposure to the CPCs is most likely negligible and poses very little risk.

4.0 DESCRIPTION OF THE PREFERRED ALTERNATIVE

The USAF has selected institutional controls as the preferred alternative for the SS-005 soil operable unit. The institutional controls will consist of deed restrictions prohibiting residential development on the site and restrictions of groundwater use. There will also be five-year reviews of the selected remedy in accordance with the Section 121(c) of CERCLA.

4.1 Basis

The results of the RI indicate that there are no significant human health risks associated with the soil at SS-005, given its current use and expected use as an industrial/aviation support facility. Risk posed by contaminated soil was not evaluated for a potential future residential use of the site. Low level contamination detected in the groundwater does not pose a significant potential risk to human health, if used as a potable resource in the future. In addition, soils at SS-005 are not a source of the observed groundwater contamination. However, groundwater contaminants were detected at levels above regulatory standards at SS-005 and the site lies downgradient from the FT-002 site, a known significant source of groundwater contamination. Ecological risks are possible to terrestrial wildlife from chemicals detected in surface soil. However, due to the current land use of the area and because the area of exposed soil is limited (less than 1/10 acre), wildlife exposure to contaminants in the soil is insignificant.

The SS-005 site is located downgradient from IRP site FT-002, a significant source of VOCs in groundwater. It is possible that contaminants in groundwater from the FT-002 site may, in time, impact groundwater in the vicinity of SS-005. Migration of contaminants from FT-002 will be monitored as part of FT-002 Operable Unit 2.

4.2 Identification of Alternative

Because no evaluation of risk posed by site soils was conducted given a residential development

scenario and because contaminants, although not attributable to the site, were detected in groundwater beneath the site at concentrations exceeding regulatory standards, the following actions are included in the preferred alternative:

- Restrictions will be imposed to limit development of the site to facilities that support an industrial, non-residential use, without prior consent of the New York State Department of Environmental Conservation. The Department may require that additional evaluation of human health risk be performed prior to allowing a site development other than industrial.

- Prohibition of the installation of any wells for drinking water or any other purposes which could result in the use of the underlying groundwater without prior approval of the New York State Department of Environmental Conservation.

- An evaluation of the above institutional controls, which will be implemented through lease and deed agreements, will be undertaken every five years.

The area that will be subject to institutional controls is shown on Figure 8.

Groundwater remedial actions, including monitoring, will be specified as required in the preferred alternative for the Groundwater Operable Unit for the upgradient FT-002 site. The area covered by the FT-002 Groundwater Operable Unit encompasses site SS-005.

5.0 COMMUNITY PARTICIPATION

The following paragraphs explain how the public can become involved in the selection process after reviewing the Proposed Plan.

5.1 Public Comment Period

Plattsburgh AFB will hold a 30-day public comment period from November 11 to December 18, 1997 to solicit public input. During this period, the public is invited to review the Proposed Plan, the Attachment I Sites Remedial Investigation (SS-005 is one of the Attachment I Sites addressed by the FFA), and to comment on the preferred alternative being considered. These documents make up the Administrative Record for the SS-005 site. The full-length reports are available at the Information Repository located at the Feinberg Library (see page one of this Proposed Plan for the address and available hours).

5.2 Public Informational Meeting and Public Hearing

Plattsburgh AFB will host a public meeting on or about December 11, 1997 at the Old Court House, Second Floor Meeting Room, 133 Margaret Street. The date and time of the meeting will be published in the Press Republican. The meeting will be divided into two segments. In the first segment, data gathered at the site, the preferred alternative, and the decision-making process will be discussed. The public is encouraged to attend this presentation and to ask questions. Immediately after the informational presentation, Plattsburgh AFB will hold a formal Public Hearing to accept comments about the remedial alternative being considered for the SS-005 site. The hearing will provide the opportunity for people to comment officially on the plan. Public comments will be recorded and transcribed, and a copy of the transcript will be added to the Administrative Record and Information Repository.

5.3 Written Comments

If you would like to submit written comments about Plattsburgh AFB's preferred alternative or other issues relevant to the site remediation, please deliver your comments to Plattsburgh AFB's IRP Coordinator at the Public Hearing or mail your written comments (to be received no later than the week of December 15, 1997) to:

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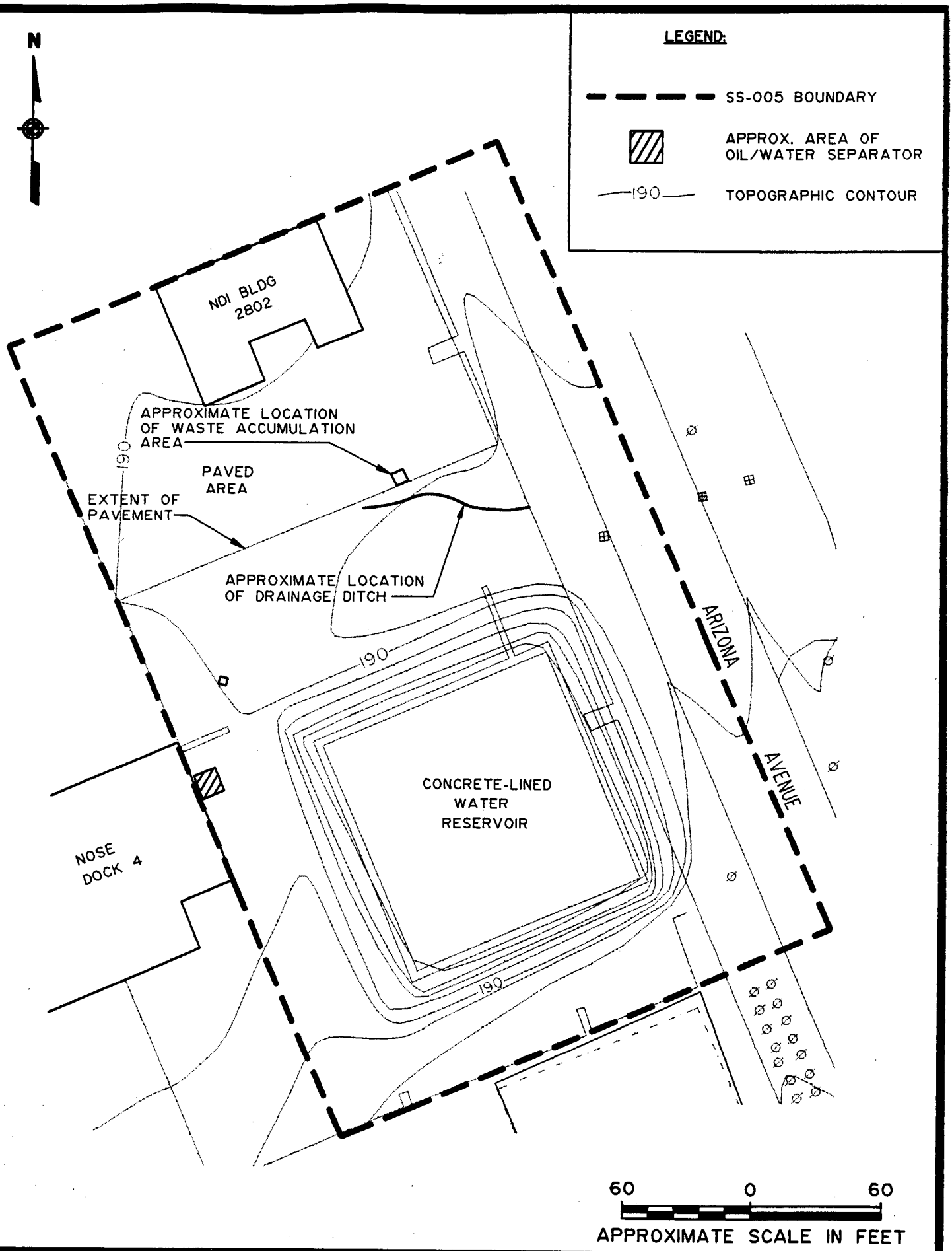

AC-12060

URS CONSULTANTS, INC.

PLATTSBURGH A.F.B.
BOUNDARY FOR RESTRICTIONS OF SITE DEVELOPMENT & POTABLE GW USE

FIGURE 8

Mr. Michael D. Sorel
BRAC Environmental Coordinator
AFBCA/DA - Plattsburgh
426 U.S. Oval
Suite 2210
Plattsburgh AFB, NY 12903-5000
(518) 563-2871

5.4 Plattsburgh AFB's Review of Public Comment

Public comments are part of the process of reaching a final decision on an appropriate remedial alternative for SS-005. Plattsburgh AFB's final choice of a remedial alternative will be issued in a Record of Decision (ROD) for the site and will be submitted to the USEPA for review, approval, and signature and to the NYSDEC for review and concurrence. A Responsiveness Summary of public comments and Plattsburgh AFB's responses to these comments will accompany the ROD. Once the ROD is signed, it becomes part of the Administrative Record.

5.5 Additional Public Information

Because the Proposed Plan only summarizes the field investigation and remedial action for SS-005, the public is encouraged to consult the Administrative Record which contains the complete RI and other supporting reports.

REFERENCES

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U.S. Environmental Protection Agency (USEPA). 1989a. *Guidance on Preparing Superfund Decision Documents: the Proposed Plan, the Record of Decision, Explanation of Significant Differences, the Record of Decision Amendment*, Interim Final, July. Cincinnati, OH: USEPA.

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_____. 1991b. *Ecological Assessment of Superfund Sites: an Overview, ECO Update*, Vol. 1, No. 2, Publication 934.0-05I. Cincinnati, OH: USEPA.

_____. 1996. *Soil Screening Guidance: Technical Background Document,* (EPA/540/R-95/128), Cincinnati, OH: USEPA.

GLOSSARY

Administrative Record: A file established and maintained in compliance with Section 113(K) of CERCLA, consisting of information upon which the lead agency bases its final decisions on the selection of remedial method(s) for a Superfund site. The Administrative Record is available to the public.

Applicable or Relevant and Appropriate Requirements (ARARs): ARARs include any state or federal statute or regulation that pertains to protection of public health and the environmental in addressing certain site conditions or using a particular remedial technology at a Superfund site. A state law to preserve wetland areas is an example of an ARAR. USEPA must consider whether a remedial alternative meets ARARs as part of the process for selecting a remedial alternative for a Superfund site.

Carcinogenic: Exposure to a particular level of a potential carcinogen may produce cancer.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act requires federal agencies to investigate and remediate abandoned or uncontrolled hazardous waste sites.

Ecological Receptors: Fauna or flora in a given area that could be affected by contaminants in surface soils, surface water, and/or sediment.

Groundwater: Water found beneath the earth's surface that fills pores within materials such as sand, soil, gravel, and cracks in bedrock, and often serves as a source of drinking water.

Inorganic Compounds: A class of naturally occurring compounds that includes metals, cyanide, nitrates, sulfates, chlorides, carbonate, bicarbonate, and other oxide complexes.

Installation Restoration Program (IRP): The U.S. Air Force subcomponent of the Defense Environment Restoration Program (DERP) that specifically deals with investigating and remediating sites associated with suspected releases of toxic and hazardous materials from past activities. The DERP was established to clean up hazardous waste disposal and spill sites at Department of Defense facilities nationwide.

Monitoring: Ongoing collection of information about the environment that helps gauge the effectiveness of a cleanup action. Information gathering may include groundwater well sampling, surface water sampling, soil sampling, air sampling, and physical inspections.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The NCP provides the organization structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants. The NCP is required under CERCLA and the Clean Water Act, and the USEPA has been delegated the responsibility for preparing and implementing the NCP. The NCP is applicable to response actions taken pursuant to the authorities under CERCLA and the Clean Water Act.

National Priorities List: The USEPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program.

Natural Attenuation: Processes by which contaminant levels are reduced in nature. Contaminants in soil or groundwater are reduced by aerobic (oxygen-using) bacteria, other biological activity, volatilization, and dilution/dispersion.

Noncarcinogenic: Exposure to a particular level of a potential noncarcinogen may produce adverse health effects.

Organic Compounds: Any chemical compounds built on the carbon atom, i.e., methane, propane, phenol, etc.

Polynuclear Aromatic Hydrocarbons (PAHs): A chemical compound consisting of carbon and hydrogen and containing two or more fused benzene rings. They are a group of highly reactive organic compounds found in motor oil and common components of creosotes. Many are carcinogenic.

Petroleum Hydrocarbons (PHCs): The mixture of hydrocarbons and small amounts of other substances that make up petroleum. Hydrocarbons are chemical compounds consisting of carbon and hydrogen, and are found in gasoline, naphtha, and other products produced by refining processes.

Polychlorinated Biphenyl (PCB): A compound that formerly was used as a lubricant and transformer coolant.

Proposed Plan: A public document that solicits public input on a recommended remedial alternative to be used at a National Priorities List (NPL) site. The Proposed Plan is based on information and technical analysis generated during the RI/FS. The recommended remedial action could be modified or changed based on public comments and community concerns.

Record of Decision (ROD): A public document that explains the remedial alternative to be used at a National Priorities List (NPL) site. The ROD is based on information and technical analysis generated during the Remedial Investigation, and on consideration of the public comments and community concerns received on the Proposed Plan. The ROD includes a Responsiveness Summary of public comments.

Remedial Action: A long-term action that stops or substantially reduces a release or threat of a release of hazardous substances that is serious but not an immediate threat to human health or the environment.

Remedial Alternatives: Options evaluated to address the source and/or migration of contaminants to meet health-based or ecology-based remediation goals.

Remedial Investigation (RI): The Remedial Investigation determines the nature, extent, and composition of contamination at a hazardous waste site and directs the types of remedial options that are developed in the Feasibility Study.

Semivolatile Organic Compound (SVOCs) : Organic constituents which are generally insoluble in water and are not readily transported in groundwater.

Source: Area at a hazardous waste site from which contamination originates.

Superfund: The trust fund, created by CERCLA out of special taxes, used to investigate and clean up abandoned or uncontrolled hazardous waste sites. Out of this fund the USEPA either: (1) pays for site remediation when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work or (2) takes legal action to force parties responsible for site contamination to clean up the site or pay back the federal government for the cost of the remediation. Federal facilities are not eligible for Superfund monies.

Technical and Administrative Guidance Memorandum (TAGM): TAGM #4046 issued by NYSDEC Bureau of Hazardous Waste Remediation establishes chemical-specific soil cleanup objectives in the vadose zone. The document is entitled *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC 1994).

Terrestrial Wildlife: Animals living on land (e.g., reptiles, small mammals, small birds, predatory mammals, predatory birds).

To Be Considered (TBCs): Federal and state policies, advisories, and other non-promulgated health and environment criteria, including numerical guidance values, that are not legally binding. TBCs are used for the protection of public health and the environment if no specific ARARs for a chemical or other site conditions exist, or if ARARs are not deemed sufficiently protective.

Volatile Organic Compounds (VOCs): Organic compounds that have a high propensity to volatilize or to change from a liquid to a gas form.